

## **REMARKS**

### **Summary of Office Action**

Claims 1 - 13, 15-27 and 29-41 are pending in the case. Claims 1, 16, and 30 are independent claims. All claims were finally rejected by the Examiner.

The Examiner rejected claims 1-6, 8-10, 13, 15-21, 23-25, 29-35, and 37-39 under 35USC§102 (a) as being anticipated by W3C, "Web Services Description Language (WSDL) 1.1," 03/15/01, pp. 1-51, <http://www.w3.org/TR/wsdl> (hereafter "**W3C 1.1**").

The Examiner rejected claims 7, 12, 22, 27, 36, and 40 under 35 USC§103(a) as obvious under W3C 1.1.

Claim 1, 2, 5, 6, 7, 8, 10, 12, 16, 17, 18, 20, 21, 22, 23, 24, 25, 27, 30, 31, 32, 34, 35, 36, 37, 38, 39, and 41 have been amended.

Claims 1 - 13, 15-27 and 29-41 remain in the application. Reconsideration of the rejection on the basis of the following remarks and analysis is requested.

Applicant's counsel acknowledges the input of the Examiner in the telephone conference of October 4, 2007. The amendments included in this amendment reflect the clarification proposed by Applicant's counsel.

### **The Claims**

#### **CLAIM 1**

Claim 1 has been amended to more clearly define what is meant by a "one to one mapping." Specifically, the type of mapping recited results in the "Is Instance" operator between the abstract type and an instance returns TRUE, if and only if, the "Is Valid" operator between the corresponding XML schema type an XML document returns TRUE. Support in the specification for this amendment is found on page 19, lines 5-13.

The "Is Instance" operator takes a value and a class object, and returns True if the value is an instance of the class. A schema is generally, a set of allowed types for data or documents.

The “Is Valid” operator returns a True value if the data in the XML document is valid against the constraints specified in the XML Schema.

The Examiner rejected Claim 1 by asserting that W3C 1.1 teaches a method comprising “creating a one to one mapping” of each type in the device or object to an XML schema. The Examiner pointed to the Abstract and pages 3-4 of W3C 1.1 as disclosing a one to one mapping. However, the only reference to mapping in the cited reference is in page 16, section 2.3.2 that provides:

“2.3.2 Abstract vs. Concrete Messages

Message definitions are always considered to be an abstract definition of the message content. A message binding describes how the abstract content is mapped into a concrete format. However, in some cases, the abstract definition may match the concrete representation very closely or exactly for one or more bindings, so those binding(s) will supply little or no mapping information. another binding of the same message definition may require extensive mapping information. For this reason, it is not until the binding is inspected that one can determine “how abstract” the message really is.”

Applicants again submit that a one to one mapping as described by applicant is not disclosed in the cited references. Claim 1, as amended, recites that the type of mapping required is one where the “Is Instance” operator between the abstract type and an instance returns TRUE, if and only if, the “Is Valid” operator between the corresponding XML schema type an XML document returns TRUE. No such method is taught by the cited reference. The cited references do not mention the operators recited in the claim.

Federal Circuit decisions have consistently held that anticipation is established only if all of the elements of the invention as recited in the claim are identically set forth in a single prior art reference. In re Robertson, 49 USPQ 2d 1949 (CAFC 1999). If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is “inherent” in the disclosure. However, to establish inherency, the extrinsic evidence must “make clear that the missing descriptive matter is necessarily present in the thing described

in the reference, and that it would be so recognized by persons of ordinary skill." In Re Robertson, page 1950. The W3C 1.1 reference does not identically set forth all of the elements in amended Claim 1.

Claim 1 has also been amended to clarify the TDL used to describe the one to one mapping as having a grammar for representing the behavioral aspects of said abstract type and said XML schema type. Support in the Specification can be found on page 18, lines 15-20.

With regard to the TDL, Applicant would point out that the W3C 1.1 document states, on page 4:

"It is important to observe that WSDL does not introduce a new type definition language."

The cited reference does not disclose a one-to-one mapping that results in an Is Instance operator between an abstract type and an instance returning TRUE if and only if an Is Valid operator between the corresponding XML schema type and XML Document returns TRUE. The cited reference does not disclose a new TDL; indeed it specifically states that it does not introduce a new TDL. The cited reference does not disclose a type definition language having a grammar for representing behavioral aspects of an abstract type and an XML schema type.

It is respectfully submitted that claim one as amended is not anticipated by the W3C 1.1 reference. Reconsideration and allowance of Claim 1 is requested.

## **CLAIM 2**

Claim 2 has been amended to further define the TDL as accommodating classes that have data and behavioral aspects. Claim 2 depends from claim 1 and incorporates the limitation of the one-to-one mapping including a one-to-one association between the abstract type and the XML schema type and a one-to-one association between the XML schema types to the abstract type.

Neither the element's disclosed in Claim 1 nor the further elements disclosed in Claim 2 are disclosed or anticipated by W3C 1.1. Reconsideration and allowance of Claim 2 is requested.

### **CLAIM 3**

Claim 3 depends from Claim 2 and further finds the one to one mapping as applying to the mapping of a programming construct to an XML schema for describing the programming construct. Prior to Applicants development of the TDL there was no existing standard XML syntax for completely and adequately expressing behavior constructs. W3C 1.1 does not disclose the type of mapping recited in claim 1, and consequently does not anticipate claim 3.

### **CLAIM 4**

The Examiner rejected claim 4 under 35 USC §102 (a), asserting that W3C 1.1 “teaches wherein the programming construct is one of pointer, class, array, subtype, enumeration, service reference, or bit field (Pages 13-14: "2.2 Types").” However, there is no reference in the cited art to a method element of creating a one to one mapping of the programming construct as required by claim 3 on which claim 4 depends.

It is respectfully submitted that Claim 4 is not anticipated by W3C 1.1. Reconsideration and allowance of Claim 4 is requested.

### **CLAIM 5**

The Examiner rejected claim 5 under 35 USC §102 (a), asserting that W3C 1.1 “teaches creating a one to one mapping from a constant value of complex type to an XML schema for describing the constant value of complex type (Page 11 : "<complexType>.. ..</complexType>").” Claim 5 has been amended to include the definition of a constant value global attribute in the TDL. Support for the amendment is found on page 49, line 5-10. W3C 1.1 does not disclose the one to one mapping claimed or the TDL having the characteristics claimed.

It is respectfully submitted that Claim 5 is not anticipated by W3C 1.1. Reconsideration and allowance of Claim 5 is requested.

## **CLAIM 6**

The Examiner rejected claim 6 under 35 USC §102 (a), asserting that W3C 1.1 teaches “creating a one to one mapping from at least properties, methods, events of the type system to an XML schema for describing the at least one of properties, methods, events (Page 5: Example 1: "<element name = "tickerSymbol" type= "stringw/>” Claim 6 has been amended to describe that the one to one mapping is a one to one mapping of actions, services, interfaces, methods, properties and event sources from the abstract type to the XML schema type. The W3C 1.1 reference describes the following elements in the WSDL on page 4:

- Types— a container for data type definitions using some type system (such as XSD).
- Message— an abstract, typed definition of the data being communicated.
- Operation— an abstract description of an action supported by the service.
- Port Type—an abstract set of operations supported by one or more endpoints.
- Binding— a concrete protocol and data format specification for a particular port type.
- Port— a single endpoint defined as a combination of a binding and a network address.
- Service— a collection of related endpoints.

The elements recited in Claim 6 are not identically described in the reference.

It is respectfully submitted that Claim 6 is not anticipated by W3C 1.1. Reconsideration and allowance of Claim 6 is requested.

### **CLAIM 7**

The Examiner rejected claim 7 under 35 USC §103 (a) asserting that “it would have been obvious to It would have been obvious to one of ordinary skill in the art at the time of the invention for the TDL of W3C to have supported inheritance of programming constructs, because W3C taught a TDL utilizing XML Schema, which was notoriously well known in the art at the time of the invention to provide inheritance to the typed programming constructs.” Applicant disagrees. Interestingly, the cited reference does not mention the concept of inheritance. However, in the new version of WSDL (WSDL 2.0, working draft published 26 march 2007, Appendix C), there is significant attention paid to the concept. Among the differences between WSDL 1.1 and WSDL 2.0 is Version 2.0 of WSDL (Web Services Description Language) a new component model, interface inheritance and other changes designed to reduce complexity. This raises the question that if it was obvious, why did it take 5 years to come up with the new version. In any event, the type of mapping described in Claim 3, upon which claim 7 depends is not disclosed in the references.

It is respectfully submitted that Claim 7 is not rendered obvious by W3C 1.1. Reconsideration and allowance of Claim 7 is requested.

### **CLAIM 8**

The examiner rejected claim 8 under 35 USC §102 (a), asserting that W3C 1.1 teaches the XML-based IDL as a wire format for message communications relating to the service between devices of the computing system (Page 12: "wire format is actually XML). It is unclear from the cited page that the wire format is actually XML. Interestingly, page 13 of the reference includes the following:

“The XSD type system can be used to define the types in a message regardless of whether or not the resulting wire format is actually XML, or whether the resulting XSD schema validates the particular wire format.”

It therefore appears from the cited reference that there is a teaching away from the claimed subject matter, namely that the one to one mapping results in the “Is Instance” operator between the abstract type and an instance returning TRUE, if and only if, the “Is Valid” operator between the corresponding XML schema type an XML document returns TRUE.

It is respectfully submitted that Claim 8 is not anticipated by W3C 1.1. Reconsideration and allowance of Claim 8 is requested.

#### **CLAIM 9**

The examiner rejected claim 8 under 35 USC §102 (a), asserting that W3C 1.1 teaches “creating a one to one mapping from the wire format to the message communications (Page 12: “wire format is actually XML).” W3C 1.1 does not teach a one to one mapping from the wire format to the message communication that results in the “Is Instance” operator between the abstract type and an instance returning TRUE, if and only if, the “Is Valid” operator between the corresponding XML schema type an XML document returns TRUE.. See discussion regarding Claim 8 and Claim 1.

It is respectfully submitted that Claim 9 is not anticipated by W3C 1.1. Reconsideration and allowance of Claim 9 is requested.

#### **CLAIM 10**

The examiner rejected claim 10 under 35 USC §102 (a), asserting that W3C 1.1 teaches “TDL enables a transfer of a service reference across an application boundary (Page 1 : Abstract; Pages 3-4: Introduction).” There is no mention of a service reference in the W3C1.1 document. Nor is there any mention of a service reference that is transferred across an application boundary. In addition, the reference does not teach the use of a TDL and does not teach a one to one mapping that results in the “Is Instance” operator between the abstract type and an instance returns TRUE, if and only if, the “Is Valid” operator between the corresponding XML schema type an XML document returns TRUE.

It is respectfully submitted that Claim 10 is not anticipated by W3C 1.1. Reconsideration and allowance of Claim 10 is requested.

### **CLAIM 11**

The Examiner rejected Claim 11 under 35 USC § 103 over W3C 1.1, in view of Jeff Schneider, "Convergence of Peer and Web Services", 07/20/01, pp. 1-7, <http://www.openp2p.com/pub/a/p2p/2001/0720/convergence.html> ("Schneider"). The Examiner cited Schneider as teaching the eventual convergence of web services computing environment and a peer to peer environment. Respectfully, it is clear that Schneider does not teach but rather speculates about a possible convergence by means presumable to be invented in the future. Neither Schneider, nor W3C 1.1 teach the element of creating a one to one mapping of each type in the device or object to an XML schema with the relationship between the instance validation and schema type validation claimed for use in a distributed computer environment.

It is respectfully submitted that Claim 11 is not rendered obvious by W3C 1.1 in combination with Schneider. Reconsideration and allowance of Claim 11 is requested.

### **CLAIM 12**

The Examiner rejected Claim 12 under 35 USC § 103 (a) as being unpatentable over W3C 1.1. The Examiner stated:

"W3C does not specifically teach wherein the XML-based IDL was extendable to map additional constructs of a richer type system to an XML schema. It would have been obvious to one of ordinary skill in the art at the time of the invention for the XML based TDL of W3C to be extendable to map additional constructs or a richer type, because W3C taught a TDL utilizing XML Schema, which was notoriously well known in the art at the time of the invention to provide the extension element which allowed the appending of additional elements to an existing simpleType or complexType element construct."

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**Office Action Dated:** January 25, 2008

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**37 CFR § 1.116**

Claim 12 has been amended to recite the elements of the Type Description Language. These elements are not identically found in the W3C 1.1 reference. However, as laid out with regard to the rejection of Claim 1, W3C 1.1 fails to disclose the one to one mapping of each type in the device or object to an XML schema in a way that an Is Instance operator between said abstract type and an instance returns TRUE if and only if an Is Valid operator between the corresponding XML schema type and XML Document returns TRUE. Furthermore, although the concept of extensibility was a known concept, achieving the extensibility by extending the interface description language to express the semantics of any specific type system as set out in applicant's specification is not disclosed by W3C 1.1. Consequently, the reference and the knowledge imputed by the Examiner does not render the claim obvious.

It is respectfully submitted that Claim 11 is not rendered obvious by W3C 1.1 in combination with Schneider. Reconsideration and allowance of Claim 11 is requested.

### **CLAIM 13**

The Examiner rejected Claim 13 on the same basis as Claim 1. It is respectfully submitted that Claim 13 is allowable for the same reasons as asserted for Claim 1. Reconsideration and allowance of Claim 13 is requested.

### **CLAIM 15**

The Examiner rejected Claim 15 on the same basis as Claim 1. It is respectfully submitted that Claim 15 is allowable for the same reasons as asserted for Claim 1. Reconsideration and allowance of Claim 15 is requested.

**CLAIM 16**

The Examiner rejected Claim 16 on the same basis as Claim 1. Claim 16 has been amended to recite that the mapping mechanism maps each type of a particular type-based system to an XML schema in a way that the Is Instance operator between said abstract type and an instance returns TRUE if and only if the Is Valid operator between the corresponding XML Schema Type and XML Document returns TRUE. This type of mapping is not disclosed in the W3C 1.1 reference.

It is respectfully submitted that Claim 16 is allowable for the same reasons as asserted for Claim 1. Reconsideration and allowance of Claim 16 is requested.

**CLAIM 17**

The Examiner rejected Claim 17 on the same basis as Claim 2. Claim 17 has been amended to recite that the interface description language is a type description language having a grammar for representing behavioral aspects of the off the abstract type and the XML schema type. It is respectfully submitted that Claim 17 is allowable for the same reasons as asserted for Claim 2. Reconsideration and allowance of Claim 17 is requested.

**CLAIM 18**

The Examiner rejected Claim 18 on the same basis as Claim 3. It is respectfully submitted that Claim 18 is allowable for the same reasons as asserted for Claim 3. Reconsideration and allowance of Claim 18 is requested.

**CLAIM 19**

The Examiner rejected Claim 19 on the same basis as Claim 4. It is respectfully submitted that Claim 19 is allowable for the same reasons as asserted for Claim 4. Reconsideration and allowance of Claim 19 is requested.

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### **CLAIM 20**

The Examiner rejected Claim 20 on the same basis as Claim 5. It is respectfully submitted that Claim 20 is allowable for the same reasons as asserted for Claim 5. Reconsideration and allowance of Claim 20 is requested.

### **CLAIM 21**

The Examiner rejected Claim 21 on the same basis as Claim 6. It is respectfully submitted that Claim 21 is allowable for the same reasons as asserted for Claim 6. Reconsideration and allowance of Claim 21 is requested.

### **CLAIM 22**

The Examiner rejected Claim 22 on the same basis as Claim 7. It is respectfully submitted that Claim 22 is allowable for the same reasons as asserted for Claim 7. Reconsideration and allowance of Claim 22 is requested.

### **CLAIM 23**

The Examiner rejected Claim 23 on the same basis as Claim 8. It is respectfully submitted that Claim 23 is allowable for the same reasons as asserted for Claim 8. Reconsideration and allowance of Claim 23 is requested.

### **CLAIM 24**

The Examiner rejected Claim 24 on the same basis as Claim 9. It is respectfully submitted that Claim 24 is allowable for the same reasons as asserted for Claim 9. Reconsideration and allowance of Claim 24 is requested.

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### **CLAIM 25**

The Examiner rejected Claim 25 on the same basis as Claim 10. It is respectfully submitted that Claim 25 is allowable for the same reasons as asserted for Claim 10. Reconsideration and allowance of Claim 25 is requested.

### **CLAIM 26**

The Examiner rejected Claim 26 on the same basis as Claim 11. It is respectfully submitted that Claim 26 is allowable for the same reasons as asserted for Claim 11. Reconsideration and allowance of Claim 26 is requested.

### **CLAIM 27**

The Examiner rejected Claim 27 on the same basis as Claim 12. It is respectfully submitted that Claim 27 is allowable for the same reasons as asserted for Claim 12. Reconsideration and allowance of Claim 27 is requested.

### **CLAIM 29**

The Examiner rejected Claim 29 on the same basis as Claim 1. It is respectfully submitted that Claim 29 is allowable for the same reasons as asserted for Claim 1. Reconsideration and allowance of Claim 29 is requested

### **CLAIM 30**

The Examiner rejected Claim 30 on the same basis as Claim 1. Claim 30 has been amended to recite that the mapping mechanism operates in a way that there is a one to one mapping from the abstract type of said type-based system to a type in said XML schema and vice-versa and a one to one mapping from an instance of the abstract type to an XML document so that the Is Instance operator between said abstract type and an instance returns TRUE if and only if the Is Valid operator between the corresponding XML Schema Type and XML Document returns TRUE. This method of operation is not disclosed by the cited reference.

It is respectfully submitted that Claim 30 is allowable for the same reasons as asserted for Claim 1. Reconsideration and allowance of Claim 30 is requested.

### **CLAIM 31**

The Examiner rejected Claim 31 on the same basis as Claim 2. Claim 31 depends from amended claim 30. It is respectfully submitted that Claim 31 is allowable for the same reasons as asserted for Claim 2. Reconsideration and allowance of Claim 31 is requested.

### **CLAIM 32**

The Examiner rejected Claim 32 on the same basis as Claim 3. Claim 32 depends from amended claim 31 which in turn depends from amended claim 30. The type of one to one mapping recited in this claim is not disclosed in the cited reference. It is respectfully submitted that Claim 32 is allowable for the same reasons as asserted for Claim 3. Reconsideration and allowance of Claim 32 is requested.

### **CLAIM 33**

The Examiner rejected Claim 33 on the same basis as Claim 4. It is respectfully submitted that Claim 33 is allowable for the same reasons as asserted for Claim 4. Reconsideration and allowance of Claim 33 is requested.

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### **CLAIM 34**

The Examiner rejected Claim 34 on the same basis as Claim 5. It is respectfully submitted that Claim 34 is allowable for the same reasons as asserted for Claim 5. Reconsideration and allowance of Claim 34 is requested.

### **CLAIM 35**

The Examiner rejected Claim 35 on the same basis as Claim 6. It is respectfully submitted that Claim 35 is allowable for the same reasons as asserted for Claim 6. Reconsideration and allowance of Claim 35 is requested.

### **CLAIM 36**

The Examiner rejected Claim 36 on the same basis as Claim 7. It is respectfully submitted that Claim 36 is allowable for the same reasons as asserted for Claim 7. Reconsideration and allowance of Claim 36 is requested.

### **CLAIM 37**

The Examiner rejected Claim 37 on the same basis as Claim 8. It is respectfully submitted that Claim 37 is allowable for the same reasons as asserted for Claim 8. Reconsideration and allowance of Claim 37 is requested.

### **CLAIM 38**

The Examiner rejected Claim 38 on the same basis as Claim 9. It is respectfully submitted that Claim 38 is allowable for the same reasons as asserted for Claim 9. Reconsideration and allowance of Claim 38 is requested.

**CLAIM 39**

The Examiner rejected Claim 39 on the same basis as Claim 10. It is respectfully submitted that Claim 39 is allowable for the same reasons as asserted for Claim 10. Reconsideration and allowance of Claim 39 is requested.

**CLAIM 40**

The Examiner rejected Claim 40 on the same basis as Claim 11. It is respectfully submitted that Claim 40 is allowable for the same reasons as asserted for Claim 11. Reconsideration and allowance of Claim 40 is requested.

**CLAIM 41**

The Examiner rejected Claim 41 on the same basis as Claim 12. Claim 41 has been amended to recite that the mapping mechanism for the XML-based Interface Description Language has action elements, service elements, interface elements, method elements, property elements, and event source elements.

It is respectfully submitted that Claim 41 is allowable for the same reasons as asserted for Claim 11. Reconsideration and allowance of Claim 41 is requested.

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**CONCLUSION**

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Notice of Non-Compliant Amendment dated January 25, 2008, and submit that Claims 1-13, 15-27 and 29-41 of the application are in condition for allowance. Favorable consideration and passage to issue of the application at the Examiner's earliest convenience is earnestly solicited.

Respectfully submitted,

Date: February 12, 2008

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